

What is claimed is:

1. An isolated nucleic acid molecule encoding a CARD-containing polypeptide, wherein said nucleic acid molecule is selected from the group consisting of:

- 5 (a) a nucleic acid molecule encoding a polypeptide comprising the amino acid sequence of CARD-11X (SEQ ID NO:8) or CARD-12X (SEQ ID NO:16);
- (b) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:7 or SEQ ID NO:15; and
- 10 (c) a nucleic acid molecule that hybridizes to the nucleic acid molecule of (a) or (b) under moderately stringent hybridization conditions.

2. An isolated nucleic acid molecule encoding a functional fragment of a CARD-containing polypeptide,
15 wherein said nucleic acid molecule is selected from the group consisting of:

- (a) a nucleic acid molecule encoding the CARD domain of CARD-10X (SEQ ID NO:4), the filament domain of CARD-10X (SEQ ID NO:6), the CARD domain of CARD-11X (SEQ ID NO:10), the ERM (ezrin) domain of CARD-11X (SEQ ID NO:12), the PDZ domain of CARD-11X (SEQ ID NO:14) and the CARD domain of CARD-12X (SEQ ID NO:16);
- (b) a nucleic acid molecule comprising the nucleotide sequence of the CARD domain of CARD-10X (SEQ ID NO:3), the filament domain of CARD-10X (SEQ ID NO:5),
25 the CARD domain of CARD-11X (SEQ ID NO:9), the ERM (ezrin) domain of CARD-11X (SEQ ID NO:11), the PDZ domain of CARD-11X (SEQ ID NO:13) and the CARD domain of CARD-12X (SEQ ID NO:15); and
- 30 (c) a nucleic acid molecule that hybridizes to the nucleic acid molecule of (a) or (b) under moderately

stringent hybridization conditions,

wherein said nucleic acid molecule does not consist of the nucleotide sequence set forth as SEQ ID NOS:19 or 21-37.

5 3. A nucleic acid molecule comprising substantially the same nucleotide sequence as SEQ ID NO:7 or SEQ ID NO:15.

4. The nucleic acid molecule of claim 1, wherein said nucleic acid molecule is cDNA or mRNA.

10 5. A vector containing the nucleic acid molecule of claim 1.

6. A cell containing the nucleic acid molecule of claim 1.

15 7. A composition comprising an amount of the nucleic acid molecule according to claim 1(c) or claim 2(c) effective to inhibit expression of a CARD-containing polypeptide, and an acceptable hydrophobic carrier capable of passing through a cell membrane.

20 8. An oligonucleotide comprising at least 15 contiguous nucleotides of the nucleotide sequence set forth in any of SEQ ID NOS:1, 7 or 15, or the complement thereof, wherein said nucleic acid molecule does not consist of the nucleotide sequence set forth as SEQ ID NOS:19 or 21-37.

25 9. The oligonucleotide of claim 8, wherein said oligonucleotide is labeled with a detectable marker.

10. A kit for detecting the presence of a nucleic acid molecule encoding a CARD-containing polypeptide, comprising at least one oligonucleotide according to claim 9.

5 11. A substantially purified CARD-containing polypeptide, comprising substantially the same amino acid sequence as the amino acid sequence of CARD-11X (SEQ ID NO:8) or CARD-12X (SEQ ID NO:16).

10 12. A substantially purified functional fragment of a CARD-containing polypeptide, comprising substantially the same amino acid sequence as the amino acid sequence of the CARD domain of CARD-10X (SEQ ID NO:4), the filament domain of CARD-10X (SEQ ID NO:6), the CARD domain of CARD-11X (SEQ ID NO:10), the ERM (ezrin)
15 domain of CARD-11X (SEQ ID NO:12), the PDZ domain of CARD-11X (SEQ ID NO:14) and the CARD domain of CARD-12X (SEQ ID NO:16),

wherein said functional fragment is not encoded by a nucleic acid molecule consisting of the nucleotide
20 sequence set forth as SEQ ID NOS:19 or 21-37.

13. A substantially purified functional fragment of a CARD-containing polypeptide, comprising at least 10 contiguous residues of SEQ ID NOS: 2, 8 or 16,

wherein said functional fragment is not encoded
25 by a nucleic acid molecule consisting of the nucleotide sequence set forth as SEQ ID NOS:19 or 21-37, and

wherein said functional fragment is immunogenic.

14. A method of producing a CARD-containing polypeptide, comprising expressing the cDNA of claim 3 *in vitro* or in a cell under conditions suitable for expression of said polypeptide.

5 15. An isolated anti-CARD antibody having specific reactivity with the CARD-containing polypeptide of claim 11 or 12.

16. The antibody of claim 15, wherein said antibody is a monoclonal antibody.

10 17. A cell line producing the monoclonal antibody of claim 16.

18. The antibody of claim 15, wherein said antibody is a polyclonal antibody.

15 19. A transgenic nonhuman mammal expressing exogenously the nucleic acid of claim 1.

20. The transgenic nonhuman mammal of claim 19, wherein said mammal is a mouse.

21. A method for identifying a nucleic acid molecule encoding a CARD-containing polypeptide, said method comprising:

 contacting a sample containing nucleic acids with an oligonucleotide according to claim 8, wherein said contacting is effected under high stringency hybridization conditions, and identifying a nucleic acid molecule that hybridizes to said oligonucleotide.

22. A method for detecting the presence of a CARD-containing polypeptide in a sample, said method comprising contacting a test sample with an antibody according to claim 18, detecting the presence of an antibody: CARD complex, and thereby detecting the presence of a human CARD-containing polypeptide in said test sample.

23. A method of identifying a CARD-associated polypeptide (CAP) comprising the steps of:

- 10 (a) contacting the CARD-containing polypeptide of claim 11 or 12 with a candidate CAP;
- (b) determining association of said CARD-containing polypeptide with said candidate CAP, wherein a polypeptide that associates with said CARD-containing polypeptide is a CAP.
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24. A method of identifying an effective agent that alters the association of a CARD-containing polypeptide with a CARD-associated polypeptide (CAP), comprising the steps of:

- 20 (a) contacting the CARD-containing polypeptide of claim 11 or 12 and said CAP under conditions that allow the CARD-containing polypeptide and CAP polypeptides to associate, with an agent suspected of being able to alter the association of the CARD-containing polypeptide and CAP polypeptides; and
- 25 (b) determining association of said CARD-containing polypeptide with said CAP, wherein an agent that said alters said association is identified as an effective agent.

25. A method of altering a biochemical process modulated by a CARD-containing polypeptide, comprising the steps of:

(a) introducing the nucleic acid of claim 1 or
5 claim 2 into a cell; and

(b) expressing said nucleic acid in said cell, whereby the expression of said nucleic acid alters a biochemical process modulated by a CARD-containing polypeptide.

10 26. A method of diagnosing or predicting clinical prognosis of a pathology characterized by an increased or decreased level of a CARD-containing polypeptide in a subject, comprising the steps of:

(a) obtaining a test sample from the subject;
15 (b) contacting said test sample with a reagent that can bind the CARD-containing polypeptide of claim 11 or claim 12 under suitable conditions which allow specific binding of said reagent to said CARD-containing polypeptide; and

20 (c) comparing the amount of said specific binding in said test sample with the amount of specific binding in a reference sample, wherein an increased or decreased amount of said specific binding in said test sample as compared to said reference sample is diagnostic
25 or predictive of clinical prognosis of a pathology.

27. The method of claim 26, wherein said reagent is an anti-CARD antibody.

28. A method of diagnosing or predicting clinical prognosis of a pathology characterized by an increased or decreased level of a CARD-containing polypeptide in a subject, comprising the steps of:

- 5 (a) obtaining a test sample from the subject;
- (b) contacting said test sample with a reagent that can bind the CARD-containing nucleic acid molecule of claim 1 or claim 2 under suitable conditions which allow specific binding of said reagent to said CARD-
- 10 containing polypeptide; and
- (c) comparing the amount of said specific binding in said test sample with the amount of specific binding in a reference sample, wherein an increased or decreased amount of said specific binding in said test
- 15 sample as compared to said reference sample is diagnostic or predictive of clinical prognosis of a pathology.